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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/719,008

11/21/2003

Keiji Yada

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9082

7590

07/14/2005

Mavis S. Gallenson, Esq.  
c/o LADAS & PARRY  
Suite 2100  
5670 Wilshire Boulevard  
Los Angeles, CA 90036-5679

EXAMINER

KEANEY, ELIZABETH MARIE

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/719,008

Applicant(s)

YADA ET AL.

Examiner

Elizabeth Keaney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/7/04;10/27/04</u> | 6) <input checked="" type="checkbox"/> Other: <u>IDS filed 11/15/04</u>                 |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 recites the limitation "said X-ray microscopic inspection" in line 6. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Michel (US Patent 4,544,845).

Michel discloses, in figures 1 and 3 and throughout the disclosure, an apparatus having x-ray generating means for generating x-ray by allowing an electron beam from an electron source (20) to impinge on a target (80) for x-ray generation, for inspecting an object to be inspected by utilizing the x-ray,

- the x-ray microscopic inspection apparatus (column 5, line 11) comprising:
  - a magnetic superposition lens (60) having a magnetic field generating portion (61) disposed in the vicinity of an electron

generating portion (22) of an electron gun, as a component element of the x-ray generating means.

Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Wang (US Patent 5,317,574).

Wang discloses, in figures 3b and 4a and throughout the disclosure, an x-ray microscopic inspection apparatus (column 4, lines 65-66) having x-ray generating means for generating an x-ray by allowing an electron beam from an electron source (16) to impinge on a target (40) for x-ray generation, for inspecting an object to be inspected by utilizing the x-ray,

- the x-ray microscopic inspection apparatus comprising:
  - a liquid metal electron source (16) using a liquid metal (column 5, line 56- column 6, line 4) as the electron source, as a component element of the x-ray generating means.

Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Hojoh et al. (US Patent Publication 2002/0130039 A1; hereinafter Hojoh).

Hojoh discloses, in figure 5 and throughout the disclosure, an x-ray microscopic inspection apparatus (page 4, paragraph 68, line 3) having x-ray generating means for generating an x-ray by allowing an electron beam from an electron source (100) to

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impinge on a target for x-ray generation, for inspecting an object to be inspected by utilizing the x-ray,

- the x-ray microscopic inspection apparatus comprising a thermal field emission electron source (page 4, paragraph 78, lines 5-6) as the electron source, as a component element of the x-ray generating means.

Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilkins (US Patent 6,430,254).

Re claim 1: Wilkins discloses, in figure 4 and throughout the disclosure, an apparatus having x-ray generating means for generating an x-ray by allowing an electron beam from an electron source (column 6, lines 45-46) to impinge on a target (20) for x-ray generation, for inspecting an object to be inspected by utilizing the x-ray,

- the x-ray microscopic inspection apparatus (column 3, line 65) comprising:
  - a magnetic superposition lens (75) having a magnetic field generating portion (column 6, lines 46-47) disposed in the vicinity of an electron generating portion of an electron gun, as a component element of the x-ray generating means.

Re claim 4: Wilkins discloses, in figures 1 and 5 and throughout the disclosure, an x-ray microscopic inspection apparatus (column 3, line 65) having x-ray generating means for generating an x-ray by allowing an electron beam from an electron source

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(column 6, lines 45-46) to impinge on a target (20) for x-ray generation, for inspecting an object to be inspected by utilizing the x-ray,

- the x-ray microscopic inspection apparatus comprising
  - a target (20) with a heat sink using a thin diamond plate (22; column 5, line 29) as the heat sink as the target for x-ray generation, as a component element of the x-ray generating means.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkins as applied to claim 1 above, and further in view of Orloff et al. (US Patent 4,629,898; hereinafter Orloff).

Wilkins teaches all the limitations as shown above, including the use of field emission electron source (column 6, line 49).

However, Wilkins is silent as to the exact type of field emission source within the device.

One of ordinary skill in the art would recognize the selection of a liquid metal or a thermal field emission electron source to be considered to constitute an obvious design

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variation based on the availabilities and cost of materials, as further evidenced by Orloff (column 1, lines 35-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use either a liquid metal or thermal field emission electron source in the device disclosed by Wilkins because the sources produce a small, concentrated beam while using little power.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent 4,315,152 discloses the use of a magnetic lens outside the vacuum of the device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Keaney whose telephone number is (571)272-2489. The examiner can normally be reached on Monday-Thursday 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER